MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY) DEGREE EXAMINATION – OCTOBER 2020

SUBJECT: INTRODUCTION TO RESEARCH – COMMON CORE (MCC 602)

Monday, October 19, 2020

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. What are the different types of research? Discuss the steps involved in research process.

(10 marks)

2A. Write an explanatory note on sampling distribution with example.

2B. If Z is normally distributed with $\mu = 0$ and $\sigma = 1$. Find the following probabilities:

   i) $P(Z \leq 2)$ ii) $P(-1 \leq Z \leq 2)$ iii) $P(Z \geq 3)$

(10 marks)

3. **Short Answer Questions:**

3A. Calculate the variance from the following distribution of marks obtained by students.

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Students	2	3	12	23	7	2	1

3B. What is Non-probability sampling? Explain quota sampling with its advantages and disadvantages.

3C. From the following data, use X^2-test and conclude whether inoculation is effective in preventing tuberculosis:

Group	Attacked	Not Attacked	Total
Inoculated	20	90	110
Not inoculated	36	74	110
Total	56	164	220

(Given, $X^2_{0.05,1} = 3.84$)

3D. Explain case-control study design, its advantages and disadvantages with an example.

3E. Define following terms:

   i)   Sensitivity   ii)   Specificity   iii)   Positive predictive value

   iv)   Negative predictive value.

3F. Describe any five salient statements of Nuremberg code.

(5 marks × 6 = 30 marks)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. (MEDICAL MICROBIOLOGY) DEGREE EXAMINATION – OCTOBER 2020

SUBJECT: SYSTEMATIC BACTERIOLOGY - 1 (MIC 604)

Tuesday, October 20, 2020

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions. Write answer that are clear, relevant and legible.**

✍ **Illustrate your answers with neatly drawn and correctly labelled diagram wherever appropriate.**

1. Discuss the pathogenesis and laboratory diagnosis of enteric fever.

(10 marks)

2. Enumerate the pathogenic *Clostridium* spp. and the infections caused. Discuss the pathogenesis and laboratory diagnosis of gas gangrene.

(10 marks)

3. **Write short notes on:**

3A. Bacillary dysentery

3B. Virulence factors of *Staphylococcus aureus*

3C. Atypical mycobacteria

3D. Classification of *Streptococcus* spp.

3E. *Yersinia enterocolitica*

3F. Laboratory diagnosis of meningococcal meningitis

(5 marks × 6 = 30 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. (MEDICAL MICROBIOLOGY) DEGREE EXAMINATION – OCTOBER 2020

SUBJECT: SYSTEMATIC BACTERIOLOGY - 2 (MIC 606)

Wednesday, October 21, 2020

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions. Write answers that are clear, relevant and legible.**

✍ **Illustrate your answer with neatly drawn and correctly labelled diagrams wherever appropriate.**

✍ **Long Essays:**

1. Classify Spirochaetes. Describe the pathogenesis and laboratory diagnosis of Leptospirosis.

    (10 marks)

2. Discuss the pathogenesis and laboratory diagnosis of Human Brucellosis.

    (10 marks)

3. **Write short notes on:**

3A. Laboratory diagnosis of *Mycoplasma pneumoniae*
3B. Lympho-Granuloma Venereum
3C. Actinomycosis
3D. Halophilic Vibrios
3E. Weil- Felix Reactions in diagnosis of Rickettsial diseases
3F. Laboratory diagnosis of *Haemophilus influenzae*

(5 marks × 6 = 30 marks)

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